

ABSTRACT

A new method to optimize a signal routing in an integrated circuit is achieved. The method comprises providing a signal routing in an integrated circuit layout. The signal routing comprises a configuration of metal lines in a stack of metal levels. Each metal level is separated from an underlying substrate by dielectric material. A Joule heating estimate is calculated for the signal routing. The Joule heating estimate is compared to a standard value. The signal routing is updated if the Joule heating estimate exceeds the standard value. The updating comprises generating a new configuration of the metal lines in the metal levels. The new configuration reduces the Joule heating. The steps of calculating, comparing, and updating are repeated if the Joule heating estimate still exceeds the standard value. Joule heating is reduced by either routing on lower metal levels or by coupling the signal routing to a heat sink.